

C5

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
9 August 2001 (09.08.2001)

PCT

(10) International Publication Number
WO 01/57188 A2

(51) International Patent Classification⁷: **C12N**

Jose, CA 95117 (US). **DRMANAC, Radoje, T.** [YU/US];
850 East Greenwich Place, Palo Alto, CA 94303 (US).

(21) International Application Number: **PCT/US01/03800**

(22) International Filing Date: 5 February 2001 (05.02.2001)

(74) Agent: **ELRIFI, Ivor, R.**; Mintz, Levin, Coh, Ferris,
Glovsky, and Popeo, P.C., One Financial Center, Boston,
MA 02111 (US).

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/496,914 3 February 2000 (03.02.2000) US
09/560,875 27 April 2000 (27.04.2000) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ,
DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ,
NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM,
TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(63) Related by continuation (CON) or continuation-in-part
(CIP) to earlier applications:

US 09/496,914 (CIP)
Filed on 3 February 2000 (03.02.2000)
US 09/560,875 (CIP)
Filed on 27 April 2000 (27.04.2000)

(84) Designated States (*regional*): ARIPO patent (GH, GM,
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian
patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European
patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,
IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF,
CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): **HYSEQ,
INC.** [US/US]; 670 Almanor Avenue, Sunnyvale, CA
94086 (US).

Published:
— *without international search report and to be republished
upon receipt of that report*

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **TANG, Y., Tom**
[US/US]; 4230 Ranwick Court, San Jose, CA 95118 (US).
LIU, Chenghua [CN/US]; 1125 Ranchero Way, #14, San

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*



WO 01/57188 A2

(54) Title: **NOVEL NUCLEIC ACIDS AND POLYPEPTIDES**

(57) Abstract: The present invention provides novel nucleic acids, novel polypeptide sequences encoded by these nucleic acids and uses thereof.

WHAT IS CLAIMED IS:

1. An isolated polynucleotide comprising a nucleotide sequence selected from the group consisting of SEQ ID NO: 1-1350, a mature protein coding portion of SEQ ID NO: 1-1350, an active domain of SEQ ID NO: 1-1350, and complementary sequences thereof.
2. An isolated polynucleotide encoding a polypeptide with biological activity, wherein said polynucleotide hybridizes to the polynucleotide of claim 1 under stringent hybridization conditions.
3. An isolated polynucleotide encoding a polypeptide with biological activity, wherein said polynucleotide has greater than about 90% sequence identity with the polynucleotide of claim 1.
4. The polynucleotide of claim 1 wherein said polynucleotide is DNA.
5. An isolated polynucleotide of claim 1 wherein said polynucleotide comprises the complementary sequences.
6. A vector comprising the polynucleotide of claim 1.
7. An expression vector comprising the polynucleotide of claim 1.
8. A host cell genetically engineered to comprise the polynucleotide of claim 1.
9. A host cell genetically engineered to comprise the polynucleotide of claim 1 operatively associated with a regulatory sequence that modulates expression of the polynucleotide in the host cell.
10. An isolated polypeptide, wherein the polypeptide is selected from the group consisting of:
 - (a) a polypeptide encoded by any one of the polynucleotides of claim 1; and
 - (b) a polypeptide encoded by a polynucleotide hybridizing under stringent conditions with any one of SEQ ID NO:1-1350.
11. A composition comprising the polypeptide of claim 10 and a carrier.
12. An antibody directed against the polypeptide of claim 10.

13. A method for detecting the polynucleotide of claim 1 in a sample, comprising:
- a) contacting the sample with a compound that binds to and forms a complex with the polynucleotide of claim 1 for a period sufficient to form the complex; and
 - b) detecting the complex, so that if a complex is detected, the polynucleotide of claim 1 is detected.
14. A method for detecting the polynucleotide of claim 1 in a sample, comprising:
- a) contacting the sample under stringent hybridization conditions with nucleic acid primers that anneal to the polynucleotide of claim 1 under such conditions;
 - b) amplifying a product comprising at least a portion of the polynucleotide of claim 1; and
 - c) detecting said product and thereby the polynucleotide of claim 1 in the sample.
15. The method of claim 14, wherein the polynucleotide is an RNA molecule and the method further comprises reverse transcribing an annealed RNA molecule into a cDNA polynucleotide.
16. A method for detecting the polypeptide of claim 10 in a sample, comprising:
- a) contacting the sample with a compound that binds to and forms a complex with the polypeptide under conditions and for a period sufficient to form the complex; and
 - b) detecting formation of the complex, so that if a complex formation is detected, the polypeptide of claim 10 is detected.
17. A method for identifying a compound that binds to the polypeptide of claim 10, comprising:
- a) contacting the compound with the polypeptide of claim 10 under conditions sufficient to form a polypeptide/compound complex; and
 - b) detecting the complex, so that if the polypeptide/compound complex is detected, a compound that binds to the polypeptide of claim 10 is identified.
18. A method for identifying a compound that binds to the polypeptide of claim 10, comprising:

a) contacting the compound with the polypeptide of claim 10, in a cell, under conditions sufficient to form a polypeptide/compound complex, wherein the complex drives expression of a reporter gene sequence in the cell; and

b) detecting the complex by detecting reporter gene sequence expression, so that if the polypeptide/compound complex is detected, a compound that binds to the polypeptide of claim 10 is identified.

19. A method of producing the polypeptide of claim 10, comprising,

a) culturing a host cell comprising a polynucleotide sequence selected from the group consisting of a polynucleotide sequence of SEQ ID NO: 1-1350, a mature protein coding portion of SEQ ID NO: 1-1350, an active domain of SEQ ID NO: 1-1350, complementary sequences thereof and a polynucleotide sequence hybridizing under stringent conditions to SEQ ID NO: 1-1350, under conditions sufficient to express the polypeptide in said cell; and

b) isolating the polypeptide from the cell culture or cells of step (a).

20. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of SEQ ID NO: 1351-2700, the mature protein portion thereof, or the active domain thereof.

21. The polypeptide of claim 20 wherein the polypeptide is provided on a polypeptide array.

22. A collection of polynucleotides, wherein the collection comprises the sequence information of at least one of SEQ ID NO: 1-1350.

23. The collection of claim 22, wherein the collection is provided on a nucleic acid array.

24. The collection of claim 23, wherein the array detects full-matches to any one of the polynucleotides in the collection.

25. The collection of claim 23, wherein the array detects mismatches to any one of the polynucleotides in the collection.

26. The collection of claim 22, wherein the collection is provided in a computer-readable format.

27. A method of treatment comprising administering to a mammalian subject in need thereof a therapeutic amount of a composition comprising a polypeptide of claim 10 or 20 and a pharmaceutically acceptable carrier.

28. A method of treatment comprising administering to a mammalian subject in need thereof a therapeutic amount of a composition comprising an antibody that specifically binds to a polypeptide of claim 10 or 20 and a pharmaceutically acceptable carrier.

SEQ ID NO:	Accession No.	Species	Description	Smith-Waterman Score	% Identity
661	G03789	Homo sapiens	Human secreted protein, SEQ ID NO: 7870.	168	68
662	Y53886	Homo sapiens	A suppressor of cytokine signalling protein designated HSCOP-6.	375	43
663	W75771	Homo sapiens	Human GTP binding protein APD08.	629	100
664	AL096770	Homo sapiens	bA150A6.2 (novel 7 transmembrane receptor (rhodopsin family) (olfactory receptor like) protein (hs6M1-21))	480	55
665	AB037734	Homo sapiens	KIAA1313 protein	978	96
666	W82841	Homo sapiens	Human cerebral protein-1.	192	84
667	W82841	Homo sapiens	Human cerebral protein-1.	182	87
668	AB030184	Mus musculus	contains transmembrane (TM) region and ATP binding region	757	68
669	AB032919	Hylobates muelleri	dopamine receptor D4	85	37
670	AF107295	Rattus norvegicus	outer membrane protein	746	81
671	Z33642	Homo sapiens	leukocyte surface protein	394	93
672	W85608	Homo sapiens	Secreted protein clone du410_5.	261	91
673	G03203	Homo sapiens	Human secreted protein, SEQ ID NO: 7284.	106	48
674	AL035587	Homo sapiens	dJ475N16.4 (KIAA0240)	2388	99
675	Y59668	Homo sapiens	Secreted protein 108-005-5-0-C1-FL.	1134	53
676	G03797	Homo sapiens	Human secreted protein, SEQ ID NO: 7878.	174	74
677	AF026954	Bos taurus	pyruvate dehydrogenase phosphatase regulatory subunit precursor; PDP α	1013	95
678	L11625	Mus musculus	receptor protein-tyrosine kinase	545	96
679	AL031427	Homo sapiens	dJ167A19.3 (novel protein)	745	100
680	AJ133430	Mus musculus	olfactory receptor	528	77
681	G02532	Homo sapiens	Human secreted protein, SEQ ID NO: 6613.	179	70
682	G03789	Homo sapiens	Human secreted protein, SEQ ID NO: 7870.	336	76
683	Y94943	Homo sapiens	Human secreted protein clone yt14_1 protein sequence SEQ ID NO:92.	118	100
684	U43360	Peromyscus maniculatus	reverse transcriptase	100	37
685	G00885	Homo sapiens	Human secreted protein, SEQ ID NO: 4966.	162	60
686	AK001518	Homo sapiens	unnamed protein product	590	100
687	G01982	Homo sapiens	Human secreted protein, SEQ ID NO: 6063.	718	100
688	Y92241	Homo sapiens	Human cancer associated antigen precursor (MO-REN-46).	2405	99
689	AC024792	Caenorhabditis elegans	contains similarity to TR:P78316	423	36
690	Y27868	Homo sapiens	Human secreted protein encoded by gene No. 107.	183	81
691	Y56514	Homo sapiens	Human Jurkat cell clone P2-15 AIM10 longest ORF protein sequence.	180	88
692	Y27795	Homo sapiens	Human secreted protein encoded by gene No. 79.	1539	99
693	Y36268	Homo sapiens	Human secreted protein encoded by gene 45.	428	98
694	U12465	Homo sapiens	ribosomal protein L35	308	89
695	Y45272	Homo sapiens	Human secreted protein encoded from gene 16.	1517	99
696	AF191838	Homo sapiens	TANK binding kinase TBK1	1242	98
697	Y02693	Homo sapiens	Human secreted protein encoded by gene 44 clone HTDAD22.	275	75
698	Y87280	Homo sapiens	Human signal peptide containing protein HSPP-57 SEQ ID NO:57.	576	90
699	Y97999	Homo sapiens	Human SCAD family molecule HSFM-1, SEQ ID NO:1.	729	99
700	AJ006701	Homo sapiens	putative serine/threonine protein kinase	610	79
701	AF209198	Homo sapiens	zinc finger protein 277	2357	100
702	AJ298841	Mus musculus	torsinA protein	709	45
703	AK021729	Homo sapiens	unnamed protein product	622	98
704	Z46787	Caenorhabditis elegans	similar to Glutaredoxin, Zinc finger, C3HC4 type (RING finger)	920	51
705	G02882	Homo sapiens	Human secreted protein, SEQ ID NO: 6963.	589	98

SEQ ID NO:	Accession No.	Species	Description	Smith-Waterman Score	% Identity
900	P60657	Homo sapiens	Sequence of human lipocortin.	1835	100
901	M27288	Homo sapiens	oncostatin M	1297	99
902	W85737	Homo sapiens	Polypeptide with transmembrane domain.	749	100
903	G01349	Homo sapiens	Human secreted protein, SEQ ID NO: 5430.	650	99
904	Y00261	Homo sapiens	Human secreted protein encoded by gene 4.	1133	99
905	AF039688	Homo sapiens	antigen NY-CO-3	771	99
906	AB007836	Homo sapiens	Hic-5	2544	100
907	AB017507	Homo sapiens	Apg12	224	100
908	AK000056	Homo sapiens	unnamed protein product	1537	98
909	Y86299	Homo sapiens	Human secreted protein HFOXB55, SEQ ID NO:214.	427	100
910	AF231023	Homo sapiens	protocadherin Flamingo 1	7393	99
911	Y14134	Homo sapiens	Vascular endothelial cell growth inhibitor beta protein sequence.	1319	100
912	Z90420	Homo sapiens	Human GDF-3 (hGDF-3) polypeptide encoding cDNA.	1950	100
913	Y19757	Homo sapiens	SEQ ID NO 475 from WO9922243.	1361	100
914	G03172	Homo sapiens	Human secreted protein, SEQ ID NO: 7253.	112	48
915	U14971	Homo sapiens	ribosomal protein S9	886	90
916	AF172854	Homo sapiens	cardiotrophin-like cytokine CLC	1204	99
917	AC005525	Homo sapiens	F22162_1	1963	100
918	AF166350	Homo sapiens	ST7 protein	4711	99
919	Y87285	Homo sapiens	Human signal peptide containing protein HSPP-62 SEQ ID NO:62.	430	100
920	Y36131	Homo sapiens	Human secreted protein #3.	465	88
921	AF193766	Homo sapiens	cytokine-like protein C17	724	100
922	Y95013	Homo sapiens	Human secreted protein vc48_1, SEQ ID NO:66.	357	100
923	X75208	Homo sapiens	protein tyrosine kinase-receptor	5256	100
924	Y96202	Homo sapiens	IkappaB kinase (IKK) binding protein, Y2H56.	813	98
925	AB039886	Homo sapiens	down-regulated in gastric cancer	785	78
926	G03368	Homo sapiens	Human secreted protein, SEQ ID NO: 7449.	55	50
927	Y48606	Homo sapiens	Human breast tumour-associated protein 67.	539	100
928	Y36151	Homo sapiens	Human secreted protein #23.	668	100
929	AF110399	Homo sapiens	elongation factor Ts	1666	100
930	AF210317	Homo sapiens	facilitative glucose transporter family member GLUT9	2763	99
931	Y73328	Homo sapiens	HTRM clone 082843 protein sequence.	931	100
932	G01959	Homo sapiens	Human secreted protein, SEQ ID NO: 6040.	274	100
933	U47924	Homo sapiens	B-cell receptor associated protein	1469	100
934	G03827	Homo sapiens	Human secreted protein, SEQ ID NO: 7908.	529	93
935	AB039371	Homo sapiens	mitochondrial ABC transporter 3	196	63
936	X56385	Canis familiaris	rab8	1064	100
937	B08906	Homo sapiens	Human secreted protein sequence encoded by gene 16 SEQ ID NO:63.	117	44
938	M13692	Homo sapiens	alpha-1 acid glycoprotein precursor	1064	99
939	Y53886	Homo sapiens	A suppressor of cytokine signalling protein designated HSCOP-6.	515	42
940	Y16630	Homo sapiens	Human Putative Adrenomedullin Receptor (PAR).	1904	99
941	AC005102	Homo sapiens	small inducible cytokine subfamily A member 24	627	99
942	M12886	Homo sapiens	T-cell receptor beta chain	1289	81
943	AF226046	Homo sapiens	GK003	1049	98
944	Y36078	Homo sapiens	Extended human secreted protein sequence, SEQ ID NO. 463.	667	100
945	M22877	Homo sapiens	cytochrome c	565	100
946	W67869	Homo sapiens	Human secreted protein encoded by gene 63 clone HHGDB72.	551	93
947	W67859	Homo sapiens	Human secreted protein encoded by gene 53 clone HBMCL41.	283	100
948	W85726	Homo sapiens	Novel protein (Clone BG33_7).	789	100
949	AJ242015	Homo sapiens	eMDC II protein	4236	100
950	G04075	Homo sapiens	Human secreted protein, SEQ ID NO: 8156.	567	99

SEQ ID NO:	Accession No.	Species	Description	Smith-Waterman Score	% Identity
1051	W78324	Homo sapiens	Fragment of human secreted protein encoded by gene 81.	1318	98
1052	Y21851	Homo sapiens	Human signal peptide-containing protein (SIGP) (clone ID 2328134).	1643	95
1053	AL163815	Arabidopsis thaliana	putative protein	661	62
1054	Y76200	Homo sapiens	Human secreted protein encoded by gene 77.	262	100
1055	AJ276567	Homo sapiens	TC10-like Rho GTPase	1160	100
1056	Y27620	Homo sapiens	Human secreted protein encoded by gene No. 54.	154	96
1057	D14530	Homo sapiens	ribosomal protein	745	100
1058	AF132000	Homo sapiens	TADA1 protein	1132	100
1059	AL031778	Homo sapiens	dJ34B21.1 (novel BZRP (benzodiazapine receptor (peripheral) (MBR, PBR, PBKS, IBP, Isoquinoline-binding protein)) LIKE protein)	920	100
1060	AF227135	Homo sapiens	candidate taste receptor T2R9	134	33
1061	Y27575	Homo sapiens	Human secreted protein encoded by gene No. 9.	1392	100
1062	Z11697	Homo sapiens	HB15	1088	100
1063	AF123757	Homo sapiens	putative transmembrane protein	819	100
1064	AF155135	Homo sapiens	novel retinal pigment epithelial cell protein	2932	99
1065	Y41674	Homo sapiens	Human channel-related molecule HCRM-2.	936	99
1066	AJ250042	Homo sapiens	Rab5 GDP/GTP exchange factor homologue	2575	100
1067	Y36087	Homo sapiens	Extended human secreted protein sequence, SEQ ID NO. 472.	770	85
1068	Y94959	Homo sapiens	Human secreted protein clone mc300_1 protein sequence SEQ ID NO:124.	301	100
1069	Y94959	Homo sapiens	Human secreted protein clone mc300_1 protein sequence SEQ ID NO:124.	301	100
1070	W64535	Homo sapiens	Human leukocyte cell clone HP00804 protein.	2014	99
1071	X03145	Homo sapiens	pot. ORP III	148	50
1072	AL031177	Homo sapiens	dJ889M15.3 (novel protein)	821	91
1073	X82200	Homo sapiens	gpStaf50	249	62
1074	G03213	Homo sapiens	Human secreted protein, SEQ ID NO: 7294.	99	47
1075	Y36233	Homo sapiens	Human secreted protein encoded by gene 10.	506	55
1076	G03187	Homo sapiens	Human secreted protein, SEQ ID NO: 7268.	424	98
1077	L25899	Homo sapiens	ribosomal protein L10	332	76
1078	Y91447	Homo sapiens	Human secreted protein sequence encoded by gene 48 SEQ ID NO:168.	898	97
1079	G01862	Homo sapiens	Human secreted protein, SEQ ID NO: 5943.	290	89
1080	AB039723	Homo sapiens	WNT receptor frizzled-3	1376	92
1081	AB020527	Homo sapiens	Na/PO4 cotransporter homolog	269	100
1082	L13802	Homo sapiens	ribosomal protein small subunit	499	80
1083	W75098	Homo sapiens	Human secreted protein encoded by gene 42 clone HSXB125.	143	81
1084	G03564	Homo sapiens	Human secreted protein, SEQ ID NO: 7645.	83	51
1085	G04063	Homo sapiens	Human secreted protein, SEQ ID NO: 8144.	88	43
1086	AF090942	Homo sapiens	PRO0657	124	64
1087	G00517	Homo sapiens	Human secreted protein, SEQ ID NO: 4598.	129	41
1088	G04091	Homo sapiens	Human secreted protein, SEQ ID NO: 8172.	126	36
1089	AF140631	Homo sapiens	G-protein coupled receptor 14	364	82
1090	G04063	Homo sapiens	Human secreted protein, SEQ ID NO: 8144.	114	32
1091	S72304	Mus sp.	LMW G-protein	146	83
1092	W88708	Homo sapiens	Secreted protein encoded by gene 175 clone HEMAM41.	405	100
1093	W85612	Homo sapiens	Secreted protein clone fh123_5.	4358	97
1094	Y53012	Homo sapiens	Human secreted protein clone pm514_4 protein sequence SEQ ID NO:30.	1013	99
1095	Y92345	Homo sapiens	Human cancer associated antigen precursor from clone NY-REN-62.	409	100
1096	AF090942	Homo sapiens	PRO0657	147	60
1097	L24521	Homo sapiens	transformation-related protein	166	58
1098	X56932	Homo sapiens	23 kD highly basic protein	490	70
1099	G04063	Homo sapiens	Human secreted protein, SEQ ID NO: 8144.	83	35
1100	Y02693	Homo sapiens	Human secreted protein encoded by gene 44 clone HTDAD22.	149	59

SEQ ID NO: of nucleotide sequence	SEQ ID NO: of peptide sequence	Method	SEQ ID NO: in USSN 09/496 914	Predicted beginning nucleotide location corresponding to first amino acid residue of peptide sequence	Predicted end nucleotide location corresponding to last amino acid residue of peptide sequence	Amino acid sequence (A=Alanine C=Cysteine, D=Aspartic Acid, E=Glutamic Acid, F=Phenylalanine, G=Glycine, H=Histidine, I=Isoleucine, K=Lysine, L=Leucine, M=Methionine, N=Asparagine, P=Proline, Q=Glutamine, R=Arginine, S=Serine, T=Threonine, V=Valine, W=Tryptophan, Y=Tyrosine, X=Unknown, *=Stop codon, /=possible nucleotide deletion, \=possible nucleotide insertion)
						VTLRVTGESHIGGVLLKIVEQINRKQDWS DH AIWWEQKRQWLLQTHWTLDKYGILADARLF FGPOHRPVILRLPNRRALRLX*
658	2008	A	5017	1	292	FFFFKETESHSVTQAGVQWHDLGSLQPPPPGF KRFSCSLSSWDYRCAPHPANFVFLVETGF HHVAQAGLKLTL*SANLGLSTSLPIPLFILLS
659	2009	A	5018	17	338	RGHGGKSLTGGTPGNWGDGLLVSEDSHILF T*NSLVSPVLGKWSPCLQGPGLSAVHTWPWL MAACWAVHVKTHMRPGLAVLPRLVLNSWS *AIIILLWPPKALGLQA
660	2010	A	5028	2	310	SRVDDFVGERRGGCDECLCGHRLRAVPLG HPGHLCLOPPGGPA*FLDYCRGCCPHVPGST AGSCPRQKKTTPGPTVLCVCSFWIYQRGEPH HRTGARWNH
661	2011	A	5050	752	431	RQSCSSTQAKVQWFHYGPLQSQPPGLKQSSQ LSLPNSRDHRHVPPRLAIFSFAETGSPYFAQAS LELLGSSHPPTSASQSARITGVSHRAWPLK*F NLNQYQTLTMN
662	2012	A	5054	48	103	ELNNGPFQMPCLCNGGNLAVTGSWADRSPLH EAASQGRLLALRTLSSQGYNVNAVTLDHVTP LHEACLDHVAACARTLLEAGANVNATIDGV TPLFNACSQGSPSCAELLLEYGAQAQLESCLP SPTHEGASKGHHECLDILISWGIDVDQEIPHS G TPLYVACMAQQFHCIWNLIYAGAGVRKGGY WDTPLPGAGHQSTQKLE*LFAMVEIWO
663	2013	A	5066	951	580	VRNS*SFACASVYKHHYMDGQTPCLFVSSK ADLPEGVAVSGPSAEFCRKHRLPAPVPFSCA GPAEPSTTIFTQLATMAAFPHLVHAELHPSSF WLRGLLGVVGAAVAVALSFSLYRVLVKSQ
664	2014	A	5071	550	1	LSFIEVLSMEQVNKTVVREFVVLGFSSLARLQ QLLFVIFLLLYLFTLGTNAIISTIVLDRALHTP MYFFLAISCSEICYTFVIVPKMLVDLLSQKK TISFLGCAIQMFSFLFFGSSHSFLAAMGYDR YMAICNPLRYSVLMGHGVCMLMAAAWAC GFTVSLVTTSLVFHLPFHSSNQHE
665	2015	A	5074	496	692	QQYHNTGSAGHHAHCQVGHSPHVHYPSGCG PL*IQRGLPSFNSLEGHSLKDSGHEESVQLDSE HDVQRSLYCDTAVNDVLNTSVTSMGSQMPD HDQNEGFHCREECRILGHSDRCWMPRNPMPI RSKSPEHVRNIALSIEATAADVEAYDDCGPT KRTFATFGKDVSDHPAEERPTLKGKRTVDVT ICSPKVN SVIREAGNGCEAISPTV SPLHLKSSL PTKPSVSYEIVDPGITARRC
666	2016	A	5080	408	248	IMLLSTSS*VYFQSSTKDSHFFLDFQKTGPPL VGPKAQLSGLQLQPCLYKRR
667	2017	A	5081	129	247	DLTNSHFFLDFQKTGPPLGGPKAQFSSLQLQ PCVY*RR
668	2018	A	5086	852	233	NIKSNDRWVQIKTAYKYFF*KNGDNYNWVF RALPTTFADIENLKYLLFTRDASQPFYLGHTV IFGDLEYVTVEGGIVLSRELKRLNRLLDNSE TCADQSVIWKLSKQLAICLK YAGVHAENA EDYEGRDVFNTKPIAQLIEEALSNNPQQVVEG CCSDMAITFNGLTPQKMEVMMYGLYRLRAF GHYFNDTLVFLPPVGSND
669	2019	A	5101	1	329	PGRPTRPPLLTLAHVSPEPAGPSCDSLAAQPG ASGV*VQHDSPHLLCGSQCLSEPVPVGSHPG RGCQHEAAPCPRGPGSDGLHHASACASLPP SPILPVLLPELGPL
670	2020	A	5102	3	547	DAWGNRCAVGAAPRLIHLHLCTPADPSRKP

SEQ ID NO: of nucleotide sequence	SEQ ID NO: of peptide sequence	Method	SEQ ID NO: in USSN 09/496 914	Predicted beginning nucleotide location corresponding to first amino acid residue of peptide sequence	Predicted end nucleotide location corresponding to last amino acid residue of peptide sequence	Amino acid sequence (A=Alanine C=Cysteine, D=Aspartic Acid, E=Glutamic Acid, F=Phenylalanine, G=Glycine, H=Histidine, I=Isoleucine, K=Lysine, L=Leucine, M=Methionine, N=Asparagine, P=Proline, Q=Glutamine, R=Arginine, S=Serine, T=Threonine, V=Valine, W=Tryptophan, Y=Tyrosine, X=Unknown, *=Stop codon, /=possible nucleotide deletion, \=possible nucleotide insertion)
						PKELVRKPYVLNDLEAEASLPEKKGNTLSRD LIDYVRYMVENHGEDYKAMARDEKNYYQD TPKQIRSKINVYKRFYPAEWQDFLDSLQKRK MEVE
932	2282	A	8011	412	1	SNLCLGNSWRWRWAKSRHHCIPTVTLSKRSG DIRGSHFSSPQRQSRVPGKETARVLRAGK QGRGQIPPCPWPPPPPPPPGSPGPGCRQFHQ SLEAKARHPASVREMRGKVKMRRALRRAPA STRASSRQPNPK
933	2283	A	8012	147	1077	PPVPPASRSDMAQNLDLAGRLPAGPRGMGT ALKLLLGAGAVAYGVRESVFTVEGGHRAIFF NRIGGVQQDTILAEGLHFRIPWFQYPIIYDIRA RPRKISSPTGSKDLQMVNISLRVLSRPNAQEL PSMYQRLGLDYEERVLPSIVNEVLKSVVAKF NASQLITQRAQVSLIRRELTERAKDFSLILDD VAITELSFREYTAAVEAKQVAQQAQRAQF LVEKAKQEQRKIVQAEGEAAAKMLGEAL SKNPGYIKLRKIRAAQNISKTIATSQNRILTA DNLVLNLQDESFTRGSDSLIKGKK
934	2284	A	8023	255	982	SQFSLSQVLVDSAEESLAAAAELAAQKREQ RLRKRELHLMRNEARKLNHQEVVEEDKRL KLPANWEAKKARLEWELKEEEKKKECAARG EDYEKVKLLEISAEDAERWERKKKRKNPDLG FSDYAAAQLRQYHRLTKQIKPDMETYERLRE KHGEEFFPTSNSLLHGTHVPSTEEIDRMVIDLE KQIEKRDKYSRRRPYNDDADIDYINERNAKF NKKAEIFYGKYTAIEIKQNLERGTA
935	2285	A	8027	59	310	LVSSTVNLLTEKAPWNSLAWTVTSYVFLKFL QGGGTGSTGMRDSALTLLGIGPSHRHSLSIRL SQHSSPAPMYSQTFHILVLG
936	2286	A	8032	1	639	SGRECNAKTYDYLFKLLIGDSGVGKTCVL FRFSEDAFNSTFISTIGIDFKIRTIELDGKRIKLQ IWDTAGQERFRTTTTAYYRGAMGIMLVYDIT NEKSFDNIRNWIRNIEEHASADVEKMILGNKC DVNDKRQVSKERGEKLALDYGIKFMETSAN ANINVENAFFTLARDIKAKMDKKLEGNSPQG SNQGVKITPDQQRSSFFRCVLL
937	2287	A	8039	393	311	EETIHSENSYILEKYIPISANLTLTIA
938	2288	A	8052	675	1334	LHPAATSTAWLHVPPGLSMALSWVLTIVLSLL PLLEAQIPLCANLVPVPIITNATLDRITGKWFYI ASAFRNEEYNKSVQEIQATFFYFTPNKTEDTIF LREYQTRQDQCIYNTTYLNVQRENGTISRYV GGQEHFAHLLILRDTKTYMLAFDVNDEKNW GLSVYADKPETTKEQLGEFYALDCLRPKSD VVYTDWKKDKCEPLEKQHEKERKQEEGES
939	2289	A	8055	12	1039	SSVAEFPERVQLSQPNWNFSGAGGAWSLDF AEQLKWSAELARLGESIMDGKQGGMDGSKP AGPRDFPGIRLLSNPLMGDAVSDWSPMHEAA IHGHQLSLRNLISQGWAVNITADHVSPLHEA CLGGHLSCVKILLKHGAQVNGVTADWHTPL FNACVSGSWDCVNLLLQH GASVQPESDLASP IHEAARRGHVECVNSLIAYGGNIDHKISHLGT PLYLACENQQRACVKKLLESGADVNOGKGQ DSPLHAVARTASEELACLMDFGADTQAKN AEGKRPVELVPPEPLAQLFLEREGPPSLMQL CRLRIRKCFGIQHHKITKLVLPEDLKQFLHL L
940	2290	A	8058	2	1203	KVLSIREPAHSTARKASEPSQPSQPSQPGGHLI ARLRTMDLHLFDYSEPGNFSDISWPCNSSDCI

SEQ ID NO: of nucleotide sequence	SEQ ID NO: of peptide sequence	Method	SEQ ID NO: in USSN 09/496 914	Predicted beginning nucleotide location corresponding to first amino acid residue of peptide sequence	Predicted end nucleotide location corresponding to last amino acid residue of peptide sequence	Amino acid sequence (A=Alanine C=Cysteine, D=Aspartic Acid, E=Glutamic Acid, F=Phenylalanine, G=Glycine, H=Histidine, I=Isoleucine, K=Lysine, L=Leucine, M=Methionine, N=Asparagine, P=Proline, Q=Glutamine, R=Arginine, S=Serine, T=Threonine, V=Valine, W=Tryptophan, Y=Tyrosine, X=Unknown, *=Stop codon, /=possible nucleotide deletion, \=possible nucleotide insertion)
						CYSIHQMAQMGVGEKSGIGEWVLGPNTVLAQGV*KNLALFDEWNSLGLVYVSMADNPSGSIA RFPKKLCRVLPLASADTAGLTGP
1073	2423	A	8879	146	412	DFSV*GDVDIEVTCPICLQLLTEPLSLNCGRLR*QVCITA*IKESVIISGG*SSSPVCHTTFQPANLRTSRYLPT*SIKSLGPDEPQEG
1074	2424	A	8884	67	435	HLQGRSIRTLQLTGENEKNCEVSEIRRRSGPWKEISFGDYICHTFQGDCWADRSPLHEAAAHGRLALAKTLIAQGVNVNLWTL/DRYSSLHEACL*GPVACAKPYWKMPVRHGGTVTGPPLLMV
1075	2425	A	8896	1294	248	RSGDRNGLTHQLGGLSQGSRNQSRSRSTRSRSRERPSAPRGIPFASASSSVYGSYSRPYGSDKPWPSLLDKEREESLRQKRLSERERIGELGAPEVWGLSPKNPEPDSDEHTPVEDEEPKKSTTSASTSEEEKKKKSSRSKERSKKRRKKKSSKRKHKKYSESDSDSDSDSETDSSDEDNKRRAKKAKKKK EKKKKHRSKKYKKKRSKKSRKESDSSSKESQEEFLENPWKDRTKAEPSDLIGPEAPKTLTSQDDKPLNYGHALLPGEGAAMA EYVKAGKRI PRRGEIGLTR*RNCHHLNAQVM**VVSRRHRRMEAVRTAKREPESTVLMRREPLHPFNPRRET KERE
1076	2426	A	8899	146	789	GRSTAEKEPAFDERTGKGRRLPRAGEFHG*E*APGPGPRSFQVSRKMPEEPPGARKHPFSGKSFYLDLPAGKNLQFLTGAIQQLGGVIEGFLSKEVSYIVSSRREVKAESSGKSHRGCPSPSPSEVRVETSAMVDPKGSHPRPSRKPVDVPLSRGKE LLQKAIRNQK**CTVQQLSHCRLYGEKTTAKRSQREHVQQQSQEHGKWPD LKGPR
1077	2427	A	8901	352	3	AKIGAYKYIQELWRKKQSDVMHFLLRVRCWQYPALHRAGTEWQLSALHRAPRSTQPDKACRLQYKAKQGYIYRICVRRGGWKCPVPKAVTYGKPVHHGVN*LKFAQSLQSV AEEQ
1078	2428	A	8905	536	781	ACPAENREVP EMAAGQAPHAGPGAGPGQPA PALPFAATPGSRGQALCRGGRRRQHLHGPHLRP*QAAPALHAGCQLAPHPPT
1079	2429	A	8912	121	376	NLIWKLCTERRLVILDNYDLASE/YEANKYICNRRIQFKPGQDKYFTLGLFTGSTPL*CYPKLI EYNKNGHLSFKYVKTFMSMDEY
1080	2430	A	8920	381	1788	SSESPSDPGRMAMTWIVFSLWPLTVFMGHIGHSLFSCEPITLRMCQDLPYNTTFMPNLLNHYDQQTAAALAMEPFHPMVNLDCSRDFRPFLCALYAPICMEYGRVTLPCRRLCQRAYSECSKLME MFGVPWPEDMECSRFPDCDEFYPRLVDLNLA GEPTGAPVAVQRDYGFWCPRCLKIDPDLYGYSFLHVRDCSPPCPNMYFRRELSFARYFIGLIS IICLSATLFTFVTFIDVTRFRYPERPIKCYAV WHMMVSLIFFIGFLLEDVACNA\SIPAQYKASTVTQGSINKACTMLFMILYFFTMAGSVWWVILTTTWFLAAV PKWGSEAIEKKALLFHASA WGIPGTLTILLAMNKIEGDNISGVCVGLYD VDALRYFVLAPLCLYVVVGVSLLLAGIISLNRVRIEPL*KENQDKLVKFMIRIGVFSILYL VPLL VVIGCYFYEQAYRGIWETT WIERC
1081	2431	A	8922	56	420	EERTKMSTGPDVKATVGDISSDGNLNVAQEECSRKGIVDEFFPLLSN*CIWTQPQGYPQSSYGTLANFVFCSVRHGLALILQLCNFSIYTQQMNLSIAIPAMVNNTAPPSQPNASTERPST
1082	2432	A	8923	355	1079	PFGTPSSTMAVVKNKCLMKGGKKGVKKKV

Pages 340 to 1963 of this application contain amino acid sequence listings.
They can be obtained at the address given below.

Les pages 340 to 1963 de cette demande contiennent des listages des séquences
d'acides aminés. Elles peuvent être obtenues à l'adresse indiquée ci-dessous.

World Intellectual Property Organization
34, chemin des Colombettes
CH-1211 Genève 20

